ATL FAQ-3

Q1. What is Tinkering? What is the difference between Tinkering Lab and Science Lab?

Ans. There are many definitions for tinkering - all of them with different connotations, towards different directions and with different end results.

The Free Dictionary says that a tinkerer is "one who enjoys experimenting with and repairing machine parts." The Oxford Dictionary says that to tinker is to "attempt to repair or improve something in a casual or desultory (unfocused) way." Tinkering also means trying things out and to develop a "Let's try something New" approach.

These are all helpful starting points, but the concept of tinkering is bigger than the sum of these parts. The kind of tinkering expected at the Atal Tinkering Labs will be more focused in nature and purpose. It promises to be a collective act of various processes - identifying a problem; looking for a solution by thinking out of the box/over and above the conventional/ popular streams; conceptualizing the idea; making it on one's own and then using technology to give it a shape to it and create a new entity which may be local or/and global in nature. Simply put, we may refer to tinkering as experimenting with various electronic, robotic and technology tools; understanding their potential and creating a solution for local/global problems using ideation as a starting point.

Tinkering involves:

- Identifying a problem and conceptualizing a solution
- Thinking out of the box and above the conventional/popular streams
- Putting the idea down on paper and utilizing technology to give it shape and create a new entity, which may be local or/and global in nature

Science Labs	Tinkering Labs
Science Labs are designed for guided experimenting.	Tinkering Labs are for open-ended experimenting, with no single solution.
Science Labs may have expensive or fragile equipment.	Tinkering Labs have equipment appropriate to the age of the intended students so that they can tinker without the fear of damaging equipment.
Science Labs have a static design.	Tinkering Labs are intended to evolve with the institution.
Science Labs activities correspond to topics in text books.	Tinkering Labs are intended towards life and creative skills. The skills developed in Tinkering Labs may or may not directly help in academics, but an indirect advantage is most certainly observed.
Science Labs have a fixed curriculum.	Tinkering Labs have a directional curriculum that is not restrictive and provide students with the scope to create and innovate.

Q2. What are functions of members of Atal Advisory Committee (AAC)? What is the responsibility of Principal? Also, how corporates such DELL, Intel and IBM will help schools?

Ans. The AAC comprises of Principal (Chairman), ATL In-charge (Convenor) and Representative from local industry / local community /young innovators / reputed academia / alumni / industry and student representative/ 2 parents. Recommended roles and responsibilities for members of the committee are stated as below:

- Monitor and evaluate the functioning of the ATL on a regular basis
- Make course corrections in the implementation plan as and when needed
- Identify and develop partnerships with relevant stakeholders - mentors, industry experts, makers etc. thus establishing contacts to obtain in-kind donations/ mentoring sessions etc.
- Ensure that required reports reach AIM as desired as per the requirement.

Responsibility of the Principal:

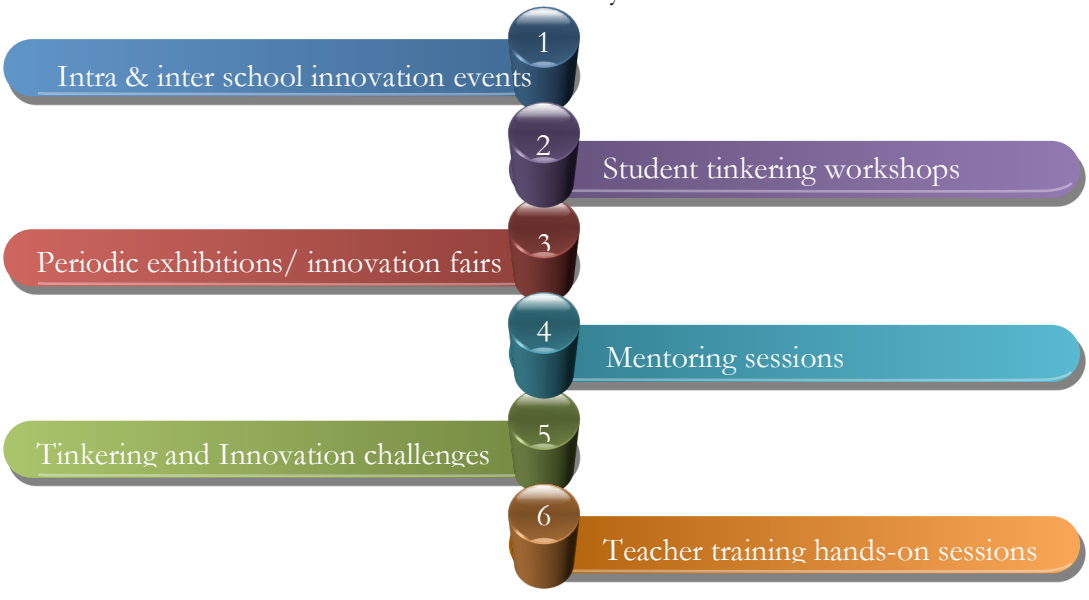
- Create a plan for establishment and operation of ATL
- Identify and prepare space for setting up ATL
- Identify human resource for ATL
- Develop time-table along with ATL-in-charge
- Monitor ATL on a regular basis and ensure ongoing utilization of tinkering lab

Role of Corporates:

The corporates are partners of AIM in supporting the ATL initiative. These companies are supporting Atal Innovation Mission as part of a mutually signed collaborative initiative. These companies will be supporting in organizing workshops, mentor programs and Trainings sessions for all the schools. Few companies such as DELL, Intel and IBM are supporting few schools in setting up the lab, provide human resources to work with ATL-in-charges in the lab, build capacities of the ATL-in-charges, engage with students and provide mentors.

Q3. What kind of activities can be done in ATL? Is there any criteria to select students for Atal Tinkering Labs? Who will have patent or IP rights for the innovation done under AIM? Is it mandatory to involve students of nearby schools to work in our ATL Lab?

Ans. Schools can organize activities like workshops for students and teachers, intra and inter school competitions, guest lectures, mentoring sessions, summer and winter innovation camps, innovation fairs etc. Schedule of these activities needs to be decided by school.



There is no criteria to select students. Atal Tinkering Labs has 4 levels that can be taught in schools.

- Level 1 – Pre-Tinker
- Level 2 – Tinker Club
- Level 3 – Tinker Lab
- Level 4 – Post Tinker Lab

More details on the four levels has been shared in FAQ 2. All students need get exposed to tinkering at Level 1. Other levels are open to all students who are interested and have an inclination towards innovation. They can spend more time in tinkering lab to develop specific innovative projects.

AIM will not have IP rights or patents for innovations.

Yes, it's mandatory to involve students of nearby schools to use ATL Lab and you cannot charge them for it.

Q4. What will be the role of mentors in Atal Tinkering Labs (ATL)?

Ans. Tinkering is a new concept in India. Therefore, it requires continuous handholding facilitated by a sustained engagement with mentors and experts. Mentors can be from the corporate world, academia, higher education institutes and government. They will be a sounding board/guide for students and can train the students in following aspects:

- Technical knowhow: building prototypes by utilising the available equipment in various fields
- Support and review specific innovation projects
- Interact through an online portal and respond to queries from students
- Innovation and Design: inculcating solution oriented approach by orienting students on aspects of design thinking
- Inspirational: Focus on holistic soft skill development
- Business and Entrepreneurship: Focus on encouraging students to create a business model in order to create sustainable and successful enterprises
- Support in inter-school and other student competitions
- Support the school in reaching out to communities in neighbouring areas
- Time commitment: minimum of 5 – 6 hours every month

Q5. Are we going to have any standard curriculum for ATL or schools have to decide individually? Are there any labs which can be visited to see how the ATL Tinkering lab is supposed to be designed and conceptualized before we finalize our own layout and plan?

Ans. AIM will launch a Tinker Handbook on different concepts like digital literacy, idea generation, design thinking, computational thinking and physical computing. Other open source and online resources can also be used for guiding the students. Schools are encouraged to look up the Internet for similar material that is open source and available for free. . NITI will organize workshops and Tinker fest for students to help them generate new ideas and create prototypes and experience innovation process. A video on the design and layout of ATL will also be shared with all the schools.